

REMARKS OF U.S. REPRESENTATIVE JOHN E. FOGARTY AT INSTITUTE OF
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Biomedical Communication: An Outsider's Views

I am honored to be here today to join the discussions of this Institute on Advances in Bio-Medical Communications. As a member of Congress long interested in the health needs of this country, I have been personally gratified in the past few years by the successes of our medical research programs, by the increased responsibility shown by Congress in protecting and advancing the health of this nation, and by the priority being given to proposed legislation designed to bolster both this research and its application to the national health needs. An effective system of biomedical communications is an absolute "must" to the success of any such program, and I am particularly pleased to have this opportunity to examine some aspects of these matters with those who are experts in communication problems.

This nation is justly proud of its medical research progress. The great epidemic diseases, which once swept over the country leaving behind broad wakes of pain and tragic loss of life, have been brought under control. In the past half century life expectancy has increased by more than 20 years, and, day by day, painstaking research is adding to the sum of our knowledge. These past achievements -- and the hope that research holds for the future -- make me greatly concerned about anything that threatens to limit further progress in improving the health of our people.

Now, the communications problem poses such a threat. Although this problem has been defined in terms of two major components -- among scientists and between the scientists and the practitioners -- it seems to me that any such distinction is essentially artificial. As an outsider -- as a layman interested in health communications -- I believe that all facets of scientific communications are intertwined and must be considered, each in the light of the other. And then I would like to throw out some questions for your consideration, somewhat as I have so often had the pleasure of doing while listening to expert testimony at the yearly Congressional appropriations hearings. I will be much interested in your reaction.

Both the researcher and physician are suffering from the fact that the massive growth of scientific knowledge has clogged our old channels of communication. Like many of our problems today, this one is of rather recent origin. No doubt all of you are familiar with a recent survey which, to me, summed up the problem neatly. It seems that in the 18th Century there were only ten journals to record the research results of the scientific world -- and today there are 50,000. Further, it is estimated that by the year 2000 there will be almost one million journals in publication. In the 19th Century, in order to make possible coverage of the 300 journals they had, abstract journals began to appear. Now there are 300 abstract journals -- and journals which abstract abstracts are appearing.

Again -- as with so many of today's problems -- modern technology provides us with some new means to deal with our problems. After discussions between scientists, educators, physicians and communications people, modern information retrieval systems came into being but have hardly yet come into their own.

One such system, of course, is the Medical Literature Analysis and Retrieval System -- MEDLARS -- which was established a couple of years ago by the National Library of Medicine right up on the Pike. This system, as you know, will permit hundreds of medical research articles to be indexed daily by language, date, title, and subject matter -- then be retrieved by the computer in answering questions of individual research installations concerning new publications bearing on their immediate problems. The MEDLARS system also has the capacity to compile and print bibliographies of papers currently being published in numerous areas of specialization and research.

Unfortunately, the National Library of Medicine is the only library in the nation with these capabilities. Therefore, these bibliographies can be provided only upon request to practicing physicians as well as to research scientists. The recent report of the President's Commission on Heart Disease, Cancer and Stroke found the "present state of most medical libraries in the United States is lamentable, largely because librarians have not received their due share of the greatly increased attention and funding for research." The Commission warned that unless something was done to improve our national medical library base, our increased growth in scientific knowledge will become an "exercise in futility."

Partly as a result of the recommendations of this Commission I have recently introduced a measure into the House -- identical with a measure introduced ~~about at the same time~~ in the Senate by my esteemed colleague, Senator Hill -- which, I believe, will do much to correct this deplorable situation.

This bill -- if enacted -- will provide Federal funds to assist in the construction and rehabilitation of medical library facilities, the training of medical librarians, the conduct of research and development in fields of medical library science, the expansion of basic library resources, the development of a national system of regional medical libraries. It will also provide for the support of non-profit biomedical publication, and for the establishment of branches of the National Library of Medicine in various areas of the nation.

If enacted, this measure will provide a vitally needed improvement in this Nation's library system. Biomedical research results will for the first time be adequately stored and indexed and an individual scientist in any part of the country will be able to obtain quickly and efficiently both a listing of new articles in his area of research and copies of papers he needs. Physicians, too, can, upon request, obtain comprehensive bibliographies concerning disease conditions they will have seen in their patients.

I am impressed by the magnitude of the job to be done, here, and I am as confident as any of you that much can be done with the electronic devices at our disposal. At the same time I must say that, to me, the retrieval of data is not the most difficult problem in communications which we face today. There are other problems which seem to me even more basic, and each of them emerges from one primary consideration: the human element. I am convinced that while electronic devices are useful, it is men, working together, utilizing the best brains available, who are really the keys to an ultimate solution of the problem. I would like now to think out loud about some of the problems so dependent on the human element -- and to get your reactions and suggestions as to what might be done.

Now I would not want to cast aspersions on the productive scientists of the nation, but what can be done to assure that what you are retrieving is worth retrieving?

Almost as much has been heard about the "publication explosion" as about the "population explosion." I am sure that this association was in the mind of an editorial writer on the New York Times recently when he suggested that more thought ought to be given to "birth control techniques" in the field of scientific publication. There is no doubt that the "publish-or-perish" syndrome causes the publication of papers which have little scientific merit and these papers help glut the retrieval mechanisms and are impossible to differentiate by purely mechanical methods. I have been assured by those competent to judge in various fields that papers have appeared which were rushed into print before the research results actually warranted distribution -- and that this is continuing. It is likely to continue unless something is done about it. I know that editors of scientific journals are being urged to raise their standards for publication; I wonder if any members of this group are in a position to add their voices to such urging? I wonder, too, if this group has other practical suggestions to offer -- you must have considered this problem -- and I would be interested to hear what you think.

Directly related to the question of the quality of the scientific work is the question of whether the paper is well written. Again, I have heard it said that a high proportion of scientific papers are not well written, or not well enough written. If a scientific paper cannot be understood, it should not be published and might as well not be retrieved. What is anyone doing about this?

I know that the American Medical Association -- in an unusually forward-looking effort -- is doing something on its own about this problem. Two years ago the AMA -- in cooperation with the School of Journalism at Northwestern University -- began sponsoring a summer Institute on Medical Writing for medical students and physicians. Through this Institute (which will be offered again this summer) young scientists are trained to communicate more clearly and are given a greater understanding of the purpose of medical journalism and medical writing.

It is tragic but no doubt true that in the massive number of papers being published today many significant findings are lost because they are so badly presented that they are not properly understood. Why can we not have other and larger efforts to train scientists and physicians to be competent writers?

Yet well-written papers on high quality research -- however well indexed and made available to other researchers -- will not help the practicing physician who does not have the time to spend in the library. For him, the collection of data alone is not enough. To organize the enormous amount of data produced each year requires talented and scientifically trained medical writers. Such writers are today taking laboratory results -- translating and summarizing -- putting them in a form so that the practicing physician can read and understand. It is significant that almost without exception, this gap has been filled -- not by scientists -- but by people with little scientific background but expert at communicating facts and ideas. Thus, a whole new field of publications aimed at the physician has grown up in the last 15 years to help the busy family doctor keep abreast of the latest advances. I wonder if you think enough utilization is being made of this capability in communication? What more might be done?

Let me come back to the scientists in the laboratories of this country. At the heart of the matter is this question: how does the bench scientist find out what his colleagues are doing? I have heard it said that those who talk most about the communications "crisis" are the professional communicators, not the professional scientists. The argument runs that the men who are doing the most exciting work in any field know what their counterparts are doing, through personal correspondence with each other, through personal contacts at national and international meetings, long before any paper is published on the results of research in progress. In 1964 the Nobel prize was awarded to two scientists working in the same research area although they were geographically half-a-world apart. It is a fair assumption that these two did not work in ignorance of each other's latest findings, nor did they wait for a new contribution to the literature to learn what the other had done. I am fairly certain, too, that the men who are today opening up the new genetics are well aware of what their colleagues are doing, whether they are in London, New York City, Chicago, or at the National Institutes of Health here in Bethesda.

This leads me to one last question: Has any survey been made to determine how the laboratory scientist feels about the communications "crisis?" Have numerous surveys determined that these men who are working on the frontiers of the unknown think it is essential that they see every possible piece of relevant data, if they are to be successful? Do they fear that they are not now as aware of all the related work as they need to be? I don't know the answers to these questions, but there are probably answers -- and good ones -- that you can provide to me, in the course of this Institute.

During my 18 years of service on the House Subcommittee which reviews Federal health expenditures I have exerted every effort to enhance this nation's efforts in the medical research. I have heard some doubts raised concerning the long-range effect of the information retrieval effort. Surely any system of biomedical communication must evolve to advance research not to stifle it. Perhaps I can illustrate this concern with an example once told to me by an able and well-known scientific administrator.

It seems that there were two laboratories, each headed by equally able scientists. In one laboratory the assistants -- when they came up with an idea -- were told to go to the library and thoroughly search the literature before beginning a project. In the other laboratory the assistants were instructed to plan their projects and proceed with research, allowing only minimal time for literature searching. The first laboratory, I am told, never duplicated any research, but it was the other laboratory that made outstanding research contributions.

To me, the moral of this story is that it may be just as well for a scientist not to know that what he is attempting has been attempted before and was found to be impossible -- because he may attempt it and do the "impossible." I do not believe that first-rate scientists will ever be discouraged from this by whatever they may read -- but others, who may have considerable potential for making discoveries, may be discouraged at a very critical point in their careers. I am concerned that this might happen, and I cannot help wondering if those of you here have given some thought to the possible eventual optimum size of all information retrieval operations? And have you considered possible inherent defects in the wide-ranging systems you are conceiving today for use tomorrow and the day after tomorrow?

I have spoken straightforwardly, here, this afternoon. The fact is that -- on topics that directly concern the medical research progress of this nation and the health of its people -- I feel strongly. I believe that you will realize that I am a most friendly critic of your endeavors -- I am asking for information to answer both your critics and to provide myself with a firmer basis upon which to stand when others raise these questions in my presence. I am seeking information. I can think of no better opportunity to get it than now. You are specialists in communications and its many aspects, and I am sure that you -- for your part -- will welcome this opportunity to educate me.

I want to thank you for sharing your platform with me today. And I want to assure you that I stand ready to do anything in my power to help assure that the recent great strides made in biomedical research will not be negated or even attenuated by faulty communications.